

Statistical analyses indicated that an unusual pattern of brain cancer incidence had occurred in Rowan County, although not an increased rate of disease (Table 3). For eight of the years of the eighties, very few brain cancer cases occurred in the "cluster area." But in 1985 and 1989, most of the Rowan County brain cancer cases occurred in the "cluster area." For the county as a whole, however, no overall increase in brain cancer occurred. The observed "sudden increase" actually followed periods of low occurrence. This pattern of brain cancer occurrence did not suggest an environmental risk. The study results were presented by written report and through a local press conference.

Brain Tumors in Northampton County — This report was submitted by the county health director who was concerned about increased occurrence of brain tumors and the possible association with a local industry. A literature review indicated that the relationship to the suspected industry was plausible and had been observed by others (Rabotti, et al., 1966; Morantz, et al., 1985). Community residents assisted health department personnel in identifying living brain tumor cases; the Cancer Surveillance Section performed a parallel search for deceased cases.

An inspection of the 1984-89 observed-versus-expected case pattern indicated eighteen brain tumors occurred when twelve were expected. The race-sex pattern was not consistent with the national pattern nor with the county's population characteristics. A subset of four cases occurred in proximity to the suspect industry. The possibility that these cases represented the increase could not be dismissed, and as a result, this cluster was referred to the Environmental Epidemiology Section for further study.

Pediatric Cancer in Gaston County — This cluster report was submitted by the parent of one of three cases of a rare pediatric tumor believed to have occurred in a short period of time in a small municipality in Gaston County. The search for additional cases from 1970 to 1989 indicated that there were two of these rare pediatric cancer cases in the mid-seventies followed by an eleven-year hiatus and then six cases in the next 30 months. These latter cancer cases were the subject of the study. A review of the scarce literature for this tumor revealed that researchers in North Carolina had previously identified the increased rates for this cancer within a twelve-county region (Gruffman, et al., 1982).

The statistical analysis by the Cancer Surveillance Section indicated that the cases were not randomly distributed. Some of the previously identified risk factors for this cancer were also found with these cases. Since these cases involved children, the distribution of birth defects in Gaston County was also examined using data

from the N.C. Birth Defects Registry. No geographic clustering was observed for birth defects. Despite this finding, the presence of several large industries and two recognized hazardous waste sites in proximity to several of the cancer cases led to this cluster being referred to the Environmental Epidemiology Section for further study.

Non-Hodgkin's Lymphoma in Granville County — A county commissioner referred this potential cancer cluster to the Cancer Surveillance Section. The residents of this small community were quite concerned about an overall increase in cancer, but especially Non-Hodgkin's Lymphoma (NHL). The analyses of the Granville County mortality experience revealed that their rates were not elevated over those of the state. Consequently, further evaluation activities by the state would not be pursued. Upon hearing of these findings however, local residents organized a citizen's task force to extend the data analyses further by collecting cancer incidence data for 1975 to 1989. This well-organized community effort identified over 130 cancer cases, nine of which were non-Hodgkin's lymphomas. The citizen's task force also collected emissions data for a dozen local industries.

Using the citizen-identified cases, a REAL increase for lymphoma occurrence was found, but there was no particular spatial or temporal pattern for the cases. There was also a visually identifiable aggregate of colon cancer cases, but overall there was no increase in colon cancer occurrence. None of the cancer patterns could be linked to any of the paths of industrial emissions; and only one company was determined to represent a potential hazard. This cluster report was closed with the assurance that surveillance would be maintained for this community. While the work of the citizen's task force did not change the findings regarding cancer clustering, it did provide better data for the analysis and a further opportunity for education to the community about cancer.

Colon Cancer in New Hanover County — The county health director reported this cluster of four intestinal cancers among neighbors, living in extremely close proximity. Three of the four colon cancer cases were under 65 years of age, an unusual distribution for cancer at this anatomic site. This region of the state has been the focus of much study because of drinking water contamination (e.g., trihalomethane formation). Each of the residents' drinking water was taken from a private well which was suspected to be contaminated with hydrogen sulfide. This cluster report was referred to the Environmental Epidemiology Section for testing of the drinking water supplies. In light of the proximity of another "closed" cluster report to this one, a recommendation was also made that surveillance be maintained for cancer occurrence in both of these communities.